
Initialize

The initialization program (INI) is a resident program used to build the unprotected data blocks in Meridian SL-1 software. An occurrence of an initialization is indicated by INI messages.

When initialization is invoked

The initialize program can be invoked:

- after a Sysload is complete
- when the manual initialize button is pressed on the Miscellaneous (MISC) or Interface (IF) card of the active CPU
- when a software or firmware fault is detected
- when a hardware fault in CE equipment is detected

When to suspect a hardware fault

Automatic initializations can be caused by either hardware or software failures. A hardware fault can be suspected when:

- the initialization outputs a message in the ranges INI002 to INI005 and/or INI007 to INI012
- initializations occur frequently on one CPU but not on the other. An INI013 message may appear specifying which CPU experiences frequent initializations. An intermittent fault can exist on the affected CPU, even though the CPU may pass a manually requested CPU test. Other possible causes of apparent CPU problems are listed with the appropriate fault codes in the following tables.
- the maintenance display indicates a fault.

INI messages (continued on page 550)

INI000 fc hh mm ss pg pc fp fa (x y) hex

An initialization has taken place. The additional fields associated with this message are described below.

fc = fault code identifying the cause of the initialization. See "FAULT CODES" on page 545.

hh = the hour of initialization

mm = the minute of initialization

ss = the second of initialization

pg = the program page at the time of trap (in hexadecimal)

pc = the program counter (in hexadecimal)

fp = the fault page (in hexadecimal)

fa = the fault address (when the fault page is on page 3). See "Page 3 fault addresses" on page 549.

x = the active CPU, if it is known. If it is not known, a question mark (?) is output. This field only occurs for dual CPU systems.

y = the active Clock Controller (SL-1 XT only)

hex = the contents of the maintenance display (see HEX for interpretation)

The INI000 message is followed by DSET000 message.

FAULT CODES

0000	Normal initialize after SYSLOAD. This code may also appear if a fault occurs in memory 0. In this case, the maintenance display should be 10 with no SYSLOAD message before the initialize. An INI004 message may follow.
0001	Manual initialize by attendant. If this code appears but no attendant has operated the manual initialize key, check whether any attendant console is equipped with an initialize key. If not, probable software or data error: check data for each console. If some consoles have an initialize key, possible fault in: 1. Attendant console. Use LD 31 to check each console having an INI key. 2. Signaling path to an attendant console. Use TEST command of LD 45 to check signaling.
0002	Manual initialize from the Miscellaneous (MISC) or Interface (IF) pack. If this code appears but the button on the MISC pack was not pressed, probable fault on MISC pack associated with the active CPU. The manual initialize button will also re-enable, if possible, all disabled items.
0003	PE signaling fault. INI003 message will follow to identify the Peripheral Signaling card at fault.
0004	Real-time clock (RTC) has failed (in a system having two CPUs). Probable fault in pack providing clock (i.e., Peripheral Signaling pack or Control, Interface and Memory pack) or Miscellaneous pack associated with active CPU.
0005	A CPU changeover has taken place due to a failure of the then-active CPU. The faulty CPU should be identified by a subsequent INI005 message. A fault may exist on: 1. Miscellaneous pack 2. QPC424 CPU pack or daughter board ROM (especially if maintenance display shows 02) 3. Function (FN), Interface (IF) or Control and Timing pack 4. CIM pack (especially for maintenance display codes 088 and 08D) 5. CMA pack
0006	Overload detected from a particular loop. Loop will be disabled. OVD diagnostic message should follow. If an OVD message identifying a faulty PE pack appeared before the initialize, remove that pack before reenabling the loop.
0007	Overload detected from a peripheral signaling pack. Offending Peripheral Signaling pack will be disabled. OVD diagnostic message should follow.
0008	Invalid operation code (opcode). Inform operating company.
0009	Invalid interrupt. Inform operating company.
000A	Attempt to write store using nil pointer. Software error.

000B	Main stack underflow. Software error.
000C	Broken queue. Software error.
000D	Response timeout in data store 0. System should reload. Replace data store 0.
000E	Trying to idle Call Register with active auxiliary Call Registers still linked to it. Inform operating company.
000F	Service change. Data store exceeded. Should be preceded by a warning message, "Equip more data store".
0010	Conversions complete.
0011	Triggered by software verification program (used by operating company only). If an investigation by the operating company is not currently active, then inform the operating company.
0012	Caused by Common Equipment Diagnostic (CED) trying to rebuild unprotected data store.
0013	All extenders disabled.
0014	Firmware fault. CPU clock unmasked. Same as for 0011.
0015	Firmware fault. RTC interrupt on level 7 unmasked. Same as for 0011.
0017	More than 5 NT8D04 Network or Network/DTR packs need software download recovery during the auto-recovery or midnight audit. Where: xxxx = cause of the initialization
0018	More than 5 NT8D01 Peripheral Controllers need software download recovery during the auto-recovery or midnight audit.
0019	From Firmware: The system has initialized after recovery from battery backup. (Note: that the system clock time has slipped during the time that the system was under battery power.)
001C	There have been more than 10 occurrences of auto-recoveries to avert INI000 000C problems since the last system initialization. INI000 001C was triggered to perform system cleanup following midnight routines. Action: Report the problem to your support engineer for further analysis.
001D	An invalid pointer is found during queue processing. Action: Report the problem to your support engineer for further analysis.
0100	Trap data blocks are not valid. No action.
0200	SYSLOAD was caused by response timeout of data store.
0400	Power-on reset. Power-up, manual reload.

0800	Software trap. No action.
1000	Memory parity error. Determine fault page (field 7 of INI000 message). Suspect a faulty: 1. CMA pack 2. MISC pack 3. Memory pack
2000	Watchdog timer runlet. This is sometimes a software fault, but may also indicate hardware faults as follows: 1. If an INI002 or INI003 message follows, the device(s) specified may be faulty. 2. If the maintenance display = 04, the following packs are suspect, (in addition to those listed in the Maintenance Display Code interpretations): - a CE extender packs - b Miscellaneous - c Serial Data Interface (SDI) - d Tape Interface - e Tone and Digit Switch (TDS). 3. If the maintenance display = 05, the following packs are suspect, (in addition to those listed in the Maintenance Display Code interpretations): - a Peripheral Signaling - b CE extender. 4. Affected CPU may be faulty. 5. CIM may be faulty (if equipped). 6. Also occurs if a TDS card is in slot 5 of an SL-1 ST and configured as loop 0. This is not a valid configuration.
3000	Same as code 1000.
4000	Write protection violation. An attempt was made to overwrite a protected memory location. Possible software fault. This code may also appear if the affected CPU is faulty, especially the MISC pack.
5000	Same as code 1000.
6000	Same as code 2000.
7000	Same as code 1000.
8000	Response timeout. A memory or other device failed to respond to a read-write request. If an INI002, INI003 or INI004 message follows the indicated device(s) may be faulty. If several devices on the same shelf are indicated, the CE extender connecting the shelf to the CPU may be faulty.

If none of the above messages appear, this code probably indicates a software fault, or:

1. CPU fault, especially Miscellaneous pack and, if equipped, Interface (IF) pack of affected CPU.
2. Peripheral Signaling pack on same bus as affected CPU.
3. CIM (if equipped).
4. Faulty ROM on CPU (QPC424 or QPC425).

9000	Same as code 1000.
A000	Same as code 8000.
B000	Same as code 1000.
C000	Same as code 8000.
D000	Same as code 1000.
E000	Same as code 8000.
F000	Same as code 1000.

Page 3 fault addresses

This table is used to interpret the fault address for page 3 faults (external devices). To obtain the address of the faulty circuit pack, the 4-digit hexadecimal codes must be converted to 4-digit binary numbers (see HEX).

Outputs not covered in this table cannot be decoded to an address. However they may indicate a Bus Fault.

0800 to 0807	CPU/Extender
1806	CMA pack
3000 to 3F7F	Serial Data Interface (SDI). Bits 4 to 7 provide card addressing.
3FC8	Tape Interface pack
8000 to A7FF	Network pack
	For single Network packs:
	Bits 7 to 13 for non-enhanced network loops
	Bits 11 to 13 for group.
	Bits 2 to 6 determine timeslots used.
	For dual Network packs:
	Bits 6 to 10 for loop
	Bits 11 to 13 for group.
	Bits 1 to 5 determine timeslots used.
C000 to D3FF	Peripheral Signaling (PS) pack Bits 13 to 15 give PS address. Bits 9 to 12 give loop address.
E000 to E8FF	Multigroup Switch (X08 and X37) or Intergroup Switch (X11). Address Bit 5 determines the odd or even switch (i.e., 0 or 1). Address Bits 9 through 11 determine the card affected.
F000 to FFFF	QPC157 Multigroup Switch (X08 and X37) or Intergroup Switch (X11). If bit 5=0, then card 0 is affected. If bit 5=1, then card 1 is affected.

INI Messages (Continued)

INI0001	Insufficient memory for this system. If maintenance display shows a defective memory module, refer to HEX. Action: If maintenance display does not show a memory fault, memory size must be increased.
INI0002 xx	I/O device fault, where xx is to the maintenance display code in.
INI0003 xx	Network or PE signalling fault, where xx is the maintenance display code in HEX.
INI0004 xx	Memory fault, where xx is the maintenance display code refer to HEX.
INI0005 000 x	CPU fault, where “x” is the CPU at fault.
INI0006 xx	A device has been detected which is not defined in the configuration record (LD17), where xx is the maintenance display code in HEX. Action: The device must be removed or enabled.
INI0007 xx	Intergroup Switch (IGS) pack fault, where xx is the maintenance display code in HEX.
INI0008 xx	I/O faults seen from the standby CPU, where xx is the maintenance display code in HEX. This is a minor alarm. This message only appears if the standby CPU may be used but with a degradation of network or I/O access as shown by comparing INI0002 with INI0008, INI0003 with INI0009, and INI0007 with INI0010.
INI0009 xx	Network faults seen from the standby CPU, where xx is the maintenance display code (see HEX). This is a minor alarm. This message only appears if the standby CPU may be used but with a degradation of network or I/O access as shown by comparing INI0002 with INI0008, INI0003 with INI0009, and INI0007 with INI0010.
INI0010 xx	IGS or MGS faults seen from the standby CPU, where xx is the maintenance display code in HEX. This message only appears if the standby CPU may be used but with a degradation of network or I/O access as shown by comparing INI0002 with INI0008, INI0003 with INI0009, and INI0007 with INI0010.
INI0011 xx	Network shelves do not respond to clock 0 (SCG card)0, where xx is the maintenance display code in HEX. Probable fault is on SCG, IGS or interconnecting cables via Junctor.

INI0012 xx	Network shelves do not respond to clock 1(SCG card 1), where xx is the maintenance display code in HEX. Probable fault is on SCG, IGS or interconnecting cables via Junctor.
INI0013 x	Possible CPU fault: x is a number of CPU. Given CPU has been initialized more than 5 times since the previous running of the midnight routines.
INI0014	Extender fault or stuck I/O interrupt on the network shelf associated with the extender card. On Meridian SL-1 MS: SBE fault. Action: If it is the stuck interrupt, the interrupt was identified which could not be disabled directly. Disabling the extender allows the Meridian 1 tp process I/O interrupts from devices not located on the network shelf in question.
INI0016	Memory access faults from the standby CPU. This is a minor alarm. If this message appears without 00xx, the standby CPU has full access to all devices of the appropriate type but the active CPU does not.
INI0020 aaaa	Page 0 has been frozen at address aaaa for software analysis, or address aaaa had been frozen for software analysis (XN CPU/Memory).
INI0021	Idle output queue was not setup.
INI0022	X08 omega diagnostic information (return address stack is output).
INI0100 0200-29F	DDSL pack failed read/write response test. Fault codes 200-29F indicate the DDSL number 0-159 respectively. For Option 81 systems, the INI0100 codes have specific meanings. These meanings are listed below. 00000021 Hardware Sanity Timeout 00000022 SWO: Failure on switchover 00000023 SWO: Too many switchovers 00000024 WARM: Disk OS Warmstart failure 00000025 WARM: Too many Disk OS Warmstarts 00000026 WARM: Disk OS not loaded 00000027 RESET: Forced SWO in process 00000028 RESET: Soft Reset in progress 00000029 TASK: Unable to create msg queue 0000002A Protected Memory checksum failure

0000002B INFO: Disk OS Warmstart begins
0000002C INFOC: DRAM is uninitialized
0000002D Restart: Cannot delete safe task
0000002E RESET: Task threshold exceeded
0000002F WARM: Exc vector threshold exceeded
00000030 WARM: Exc total threshold exceeded
00000031 WARM: Non-bus exc in interrupt
00000032 WARM: Exc handling already busy
00000033 WARM: Exc Restart Task () failed
00000034 RESET: Manual INIT requested
00000035 SEG: Checksum failure detected
00000036 SEG: Disk OS Text segment corrupt
00000037 SEG: Disk OS partitions corrupt
00000038 DISKOS: Unable to load SL-1
00000039 DISKOS: Unable to start SL-1
0000003A INSTALL: boot after installation
0000003B IOP Bus Error on active IOP
0000003C Parity Err on both sides
0000003D Parity Err in Split mode
0000003E Parity Err - remote SIMM : missing
0000003F Parity Err - remote SIMM: disabled
00000040 HI BER recommended action
00000041 HI BER TASK_RESTART for safe task
00000042 HI Warm Start not possible
00000049 OS: manual (PDT) request
0000004A OS: request to reboot (sysToMon)
0000004B OS: RST initialization failed
0000004C OS: SKD initialization failed
0000004D OS: SWD initialization failed
0000004E OS: PMEM initialization failed

0000004F OS: Security Card check failed
00000050 OS: Normal recovery from BER
00000051 OS: Unable to recover from BER
00000052 OS: Unable to run "diskos"
00000053 OS: Unable to load "diskos"
00000054 OS: VOL initialization failed
00000055 OS: SCSI initialization failed
00000056 OS: DOS initialization failed
00000057 OS: IOP initialization failed
00000058 OS: EXC initialization failed
00000059 OS: IOS initialization failed
0000005A OS: Clock initialization failed
0000005B OS: Failed during Loader run
0000005C OS: Failed to spawn Loader task
0000005D OS: kernel initialization failed
0000005E OS: diskos P seg overlaps U seg
0000005F Operating System level command to coldstart

- INI0102 The mass storage interface is not responding; peripheral software downloading was not attempted.
- INI0106 n The number of all registers has been reduced by n. This warning indicates that the number of call registers has been reduced since the amount of available unprotected data store is not large enough for the configured number of registers.
Action: Re-evaluate the number of call registers required. Examine use of unprotected data store.
- INI0107 G S Superfluous clock(s) is found. The information on Group and Side of the superfluous clock(s) is provided.
- INI0108 G S Only one clock has been found in the system in the Group G and Side S. This indicates that either there is no clock in the other side or the second installed clock has its shelf-side switch set wrong.
- INI0109 No clock has been found in the system.

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INI0110 Z G S	No clock has been found in side Z and superfluous clock(s) has been found in the other side. The information on Group and Side of the superfluous clock(s) is provided.
INI0111	16K of unprotected memory space cannot be allocated for INIT ACD Queue Call Restore (ACDR).
INI0112	INIT ACD Queue Call Restore (ACDR) aborted due to multiple system initializations.
INI7272	Failure to reprogram R72 counter register during initialization.
INI7273	No response or the response was too slow (software timed out to avoid INIT within INIT) from the carrier hardware during Carrier Remote Interface initialization update. If the message is output again with the same loop number, then it is an indication that there is a hardware fault in either the LCI or RCI card.